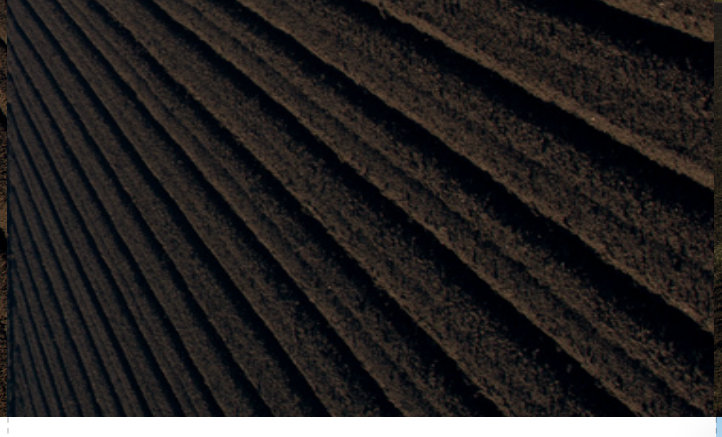

SIMETAW

Simulation of Evapotranspiration of Applied Water

A Model for Agricultural Water Demand Planning

A user-friendly Microsoft® C Sharp application program, The Simulation of Evapotranspiration of Applied Water or **SIMETAW,** *was developed for water resource planners and uses a weather generator to simulate weather data from climatic records.* **SIMETAW** *estimates reference evapotranspiration* **(ETo)** *and crop evapotranspiration* **(ETc)** *by using simulated or observed data.*

Division of Statewide Integrated Water Management
Department of Water Resources
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For detailed information and publications:
www.water.ca.gov/landwateruse/models.cfm

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With soil characteristics data, crop information, precipitation, and **ETc** data, the model generates seasonal water-balance irrigation schedules and estimates evapotranspiration of applied water **(ETaw)** for a wide range of crops.

The **ETaw** provides an estimate of the water needed to achieve full evapotranspiration, in addition to the water supplied by pre-season soil moisture, in-season effective seepage, and in-season effective rainfall, while assuming 100-percent application efficiency. Whereas other losses to runoff and deep percolation are recoverable, the **ETaw** is an unrecoverable loss of applied water.

The **SIMETAW** model's six primary functions include

1. calculating **ETo** from daily simulated or observed weather data;
2. determining crop coefficient **(Kc)** values on each day of the season for a wide range of crops;
3. accounting for factors affecting the **Kc** values;
4. calculating daily **ETc**;
5. computing a daily water balance; and
6. outputting seasonal effective precipitation **(Ep)**, seasonal effective seepage **(Espg)**, and **ETaw**.

A main feature of the **SIMETAW** program is that it assesses crop water use and irrigation requirements for a wide range of crops experiencing deficit irrigation to help with drought planning.

SIMETAW also can generate daily weather data from monthly mean values via inputs of projected climate-change variables to study possible impacts on future water demand. This feature will allow program users to propose climate change adaptation strategies that will result in sustainable water use.